CONDOR
INSTRUMENTS

ACTTRUST – USER MANUAL

Model: AT0503

Condor Instruments Ltda.

12/05/2015

CONDOR INSTRUMENTS

Index

Introduction 4
Indications of Use 4
Contraindications 4
Adverse Effects 4
Maintenance 4
Warnings and General Precautions 4
Training and Qualification 4
ActDock 5
Description 5
Cleaning and Maintenance 5
Using the ActDock 6
ActTrust 7
Description 7
Cleaning and Maintenance 7
ActStudio Software 8
Installation 8
Control Menu 8
Quick Operations Buttons 11
Data Menu 13
Support Menu 15
Configuring ActTrust for an Operation 16
Putting ActTrust Into Power Down Mode 18
Extracting ActTrust Data 20
Data Analisys 23
Actogram 23
Statistics 24
Report 25
Making a Report 26
Rebooting ActTrust 28

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Generating a Report of the ActTrust..... 29
Troubleshooting..... 30
Specifications 32
Manufacturer's declaration - Electromagnetic Immunity and Emission 34
Symbols..... 37

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Introduction

Before using the device, read the user manual as a whole.

Indications of Use

The ActTrust is an ultra-compact, lightweight, wrist-worn activity, temperature and ambient light monitor that can be used to analyze circadian rhythms, automatically collect and store data for sleep parameters, and assess activity in any instance where quantifiable analysis of physical motion is desirable. The device is intended to monitor limb or body movements during daily living and sleep.

Contraindications

There are no contraindications to the use of the device.

Adverse Effects

Patients should inform your doctor and discontinue use immediately if they experience itching or irritation in the contact area of the device with the skin.

Maintenance

Sterilization is not required for nay part of the product.

PRECAUTIONS

Inspections and repairs should only be performed by an authorized agent. Under no circumstances should you attempt to open or personally carry out repairs or maintenance of the device.

This product must be inspected by a Condor authorized service center five years from the date of manufacture, before that, the device is intended to provide a safe and reliable operation provided that it is operated and maintained in compliance with the instructions provided by Condor. The details concerning the Condor warranty applicable are provided with the device from its original purchase. Of course, like all electrical devices, be careful and request inspection at a Condor authorized service center if any malfunctions are detects.

Warnings and General Precautions

Warnings

A **warning** to the possibility of personal injury.

- Before using the device, read the entire manual.
- The device and its accessories must be used only for the purpose for which they are intended.
- Only use accessories and parts that are original and approved by Condor.

Additional equipment connected to medical electrical equipment must comply with the respective IEC or ISO standards (p. Ex., IEC 60950 relating to data processing equipment). In addition, all configurations must meet the requirements for medical electrical systems (see IEC 60601-1-1 or clause 16 of the 3rd Ed. Of IEC 60601-1, respectively). Anyone who connects additional equipment to medical electrical equipment configures a medical system and is therefore responsible for the system to comply with the requirements for medical electrical systems. It called attention to the fact that local laws take precedence over the above requirements. If in doubt, contact your local representative or service department.

Training and Qualification

Any operator must have read the manual and have the computer skills necessary to configure the device

The analysis should only be made by people who are qualified to make them

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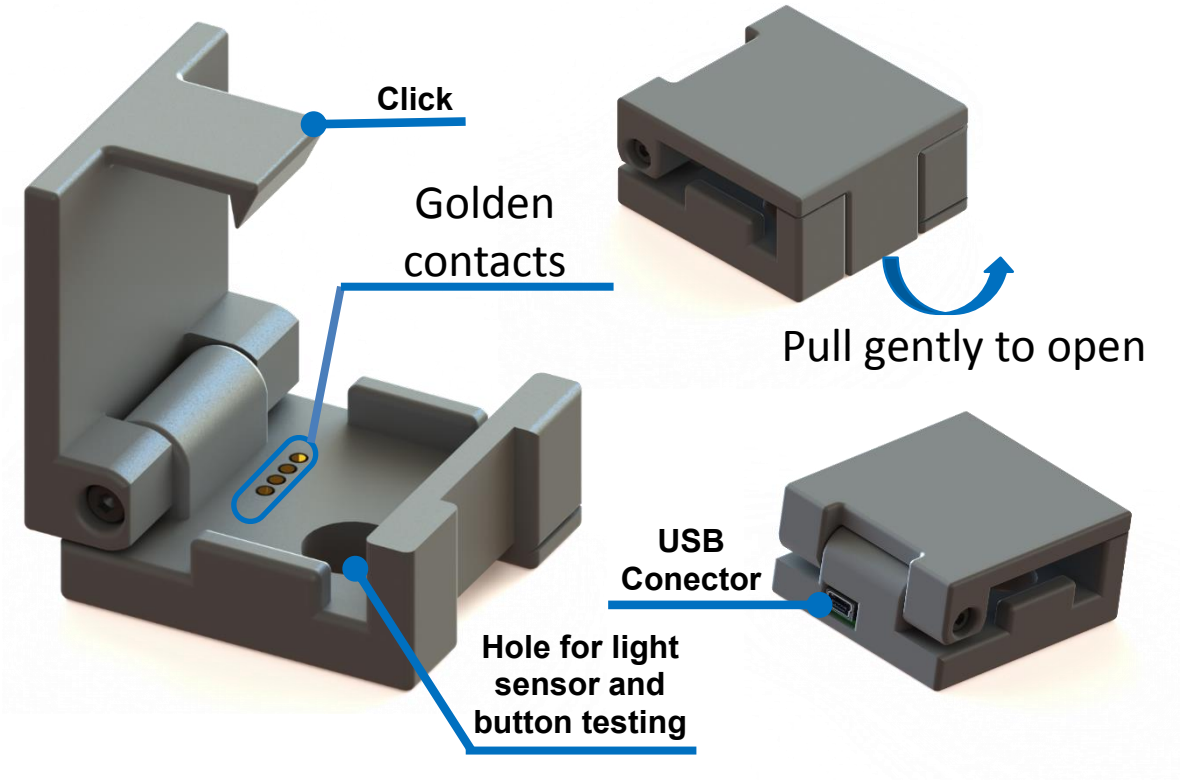
ActDock

Description



Cleaning and Maintenance

- Only clean using a damp cloth and mild soap.

Notes:

- Avoid contact with gasoline, benzine, thinner or acetone and, in case of contact with any of these substances, clean the device using a damp cloth and mild soap as soon as possible.
- Do not use abrasive cleaning components or highly alkaline (e.g., saponaceous or ammonia-based cleaners).
- Do not use Isopropanol or Butyl Cellulose in any surface of the dock.

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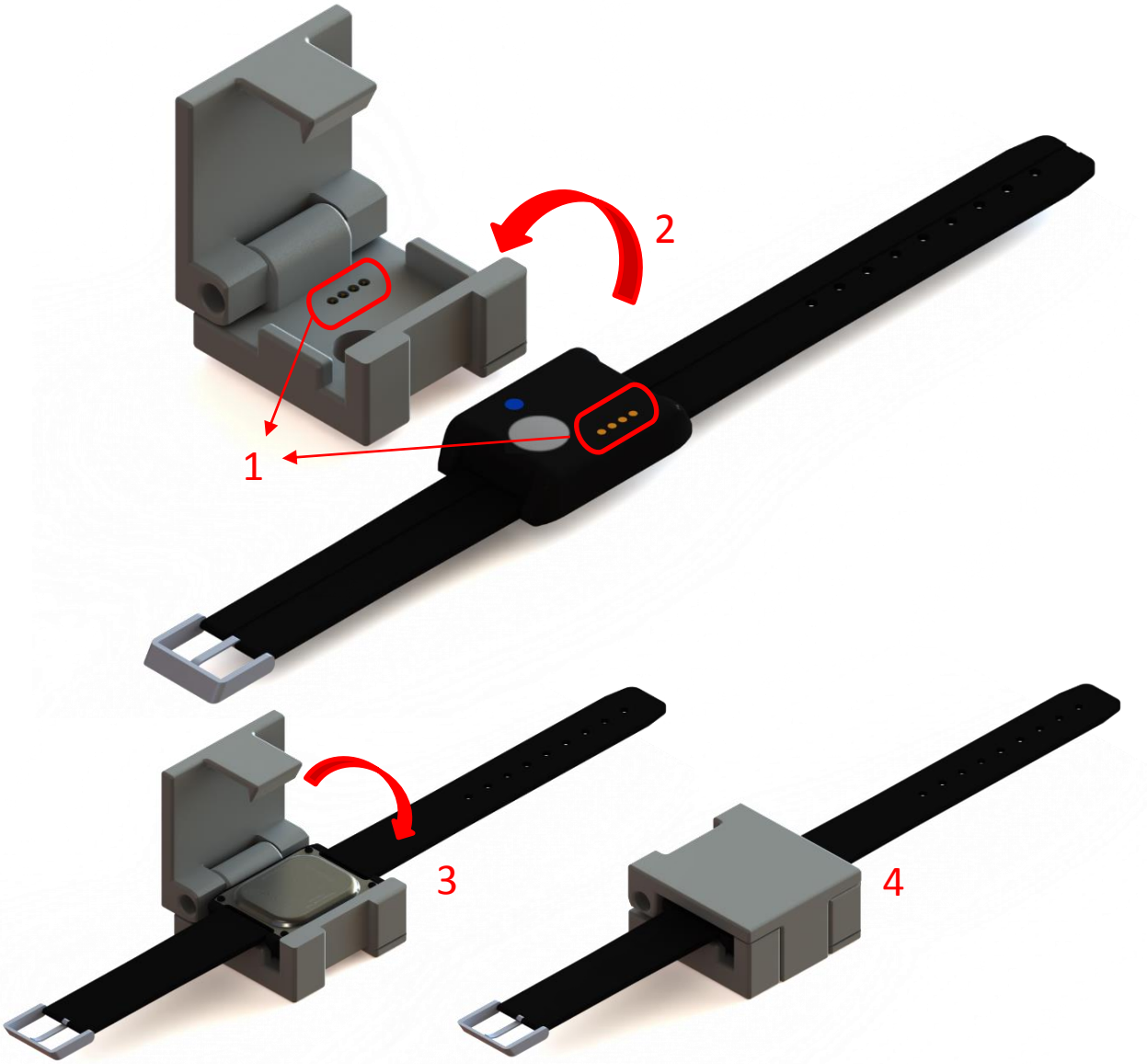
Using the ActDock



1. Guarantee that the golden pins in both the dock and in the ActTrust are aligned as shown.

2. Rotate de ActTrust in order to dovetail it in dock.

3. Close the dock and pressure it until the click locks.

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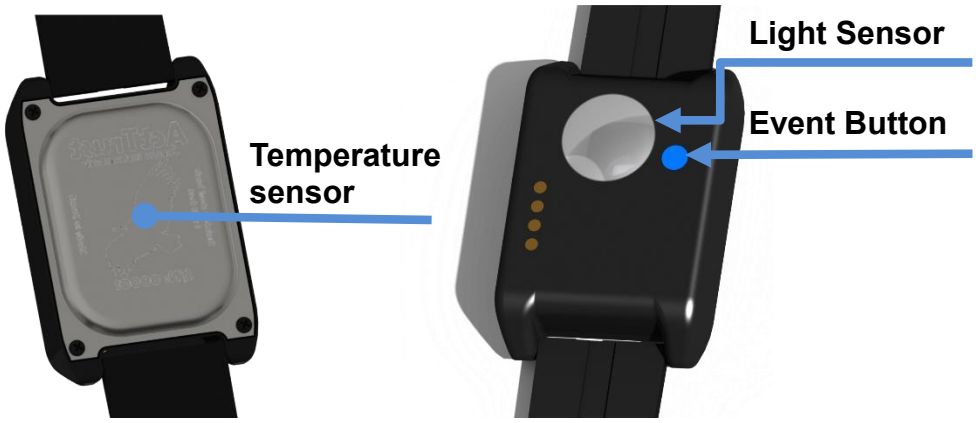
ActTrust

Description



Cleaning and Maintenance

- Wash only with warm water and mild soap.
- Always wash the device when it got into contact with salt water.
- Whenever the ActTrust is going to be stored, put the same into power down mode.
- Do not leave the ActTrust with the battery fully discharged for long periods. This may reduce the lifetime of the internal battery.
- If the ActTrust is stored for long periods, perform a full charge of the battery every 6 months.

Notes:

- Avoid contact with gasoline, benzene, thinner or acetone and, in case of contact with any of these substances, wash the device with mild soap and water as soon as possible.
- Do not use abrasive cleaning components or highly alkaline (e.g., saponaceous or ammonia-based cleaners).
- Do not use Isopropanol or Butyl Cellulose in the protective surface of the ActTrust.
- Do not swim or dive with ActTrust.

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ActStudio Software

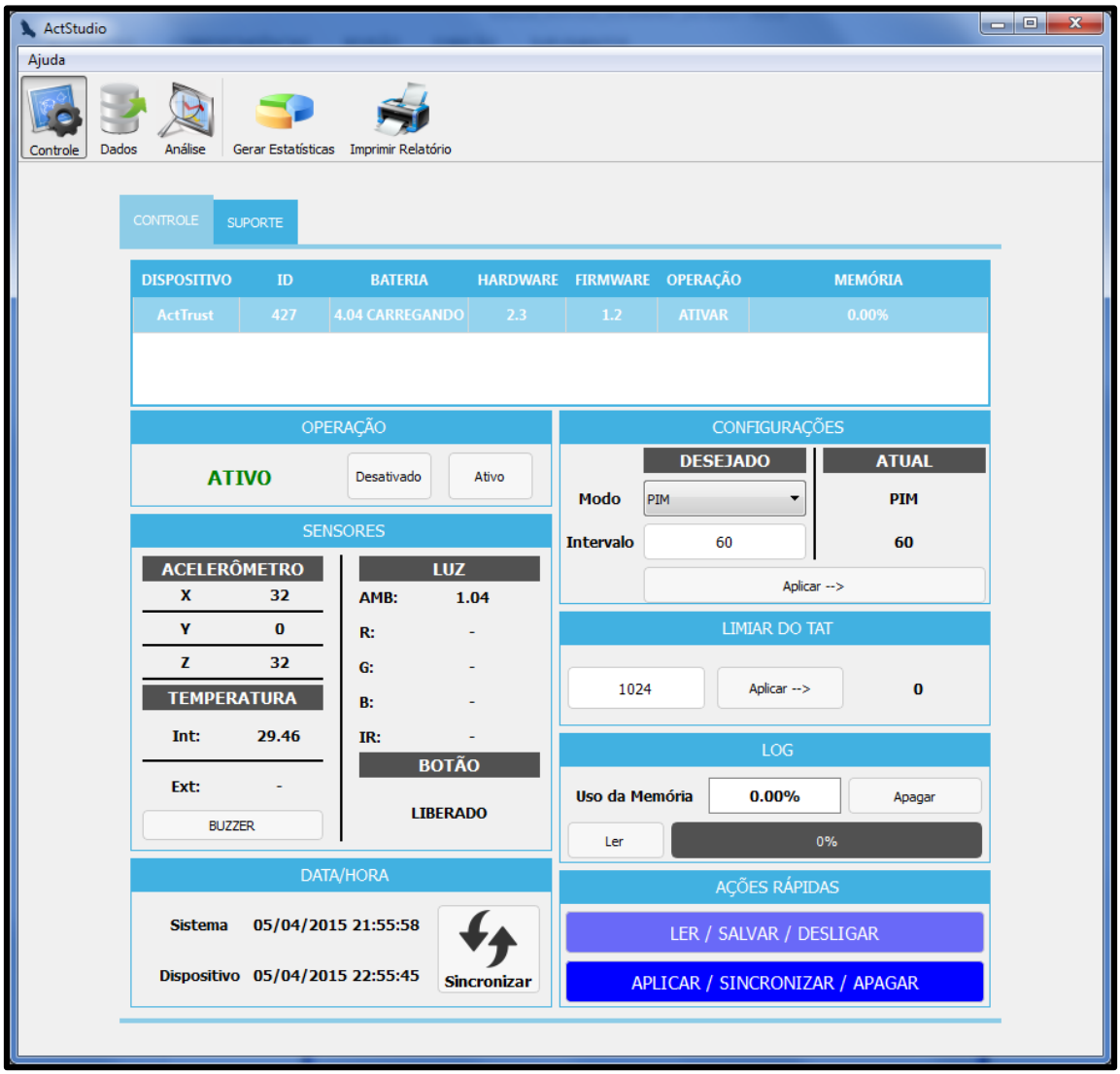
The ActStudio Software is used to extract and export data from the ActTrust. It is composed by 3 menus, described below.

Installation

This software does not require any installation. It can be run from a pen drive or any other external devise or from the computer itself.

To run the software just unzip the software file on the desired folder and the run the EXE file.

Control Menu



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INFORMATION	
DEVICE	Name of the connected device
HARDWARE VERSION	Hardware version of the connected device.
BATTERY	Charge status of the battery of the connected device and its power. CHARGING CHARGED
FIRMWARE VERSION	Firmware version of the connected device.
ID	Unique identifier of the connected device.
POWER MODE	Active or Power Down
MEMORY	Percentage of the battery used

POWER DOWN	
Label	Identifies whether the device is set to power down (storage mode) when disconnected from the dock. ENABLED: Device will enter in power down mode when you disconnect it from the dock. DISABLED: Device will enter in standard operation mode when you disconnect it from the dock.
Power Down Button	Sets the connected device to enter power down mode when disconnected from the dock.
Active Button	Sets the connected device to not enter power down mode when disconnected from the dock.

SENSORES	
ACCELEROMETER	Valor instantâneo amostrado do acelerômetro interno.
TEMPERATURA	Valores instantâneos amostrados dos sensores de temperatura interno e externo (em °C).
LUZ	Valor instantâneo amostrado do luxímetro interno.

TIME	
System	Date and Time of your computer.
Device	Date and Time of the connected device.
Sync Time Button	Synchronizes the time of the device connected to the computer's time.

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CONFIGURATIONS	
DESIRED	Desired settings of the connected device.
CURRENT	Current settings of the connected device.
Mode	Activity sampling mode: TRIAXIAL: Vector composition of the three axes. UNIAXIAL: Each axis is calculated independently **(not available)** PIM: Proportional Integral Mode TAT: Time Above Threshold ZCM: Zero Crossing Mode
Interval	Sampling interval (in seconds between 1 and 86400).
APPLY Button	Apply the desired settings at the connected device.

LOG	
Memory Usage	Memory usage of the connected device.
ERASE Button	Clears the data stored in the memory of the connected device.
READ Button	Read the data stored in the memory of the connected device.

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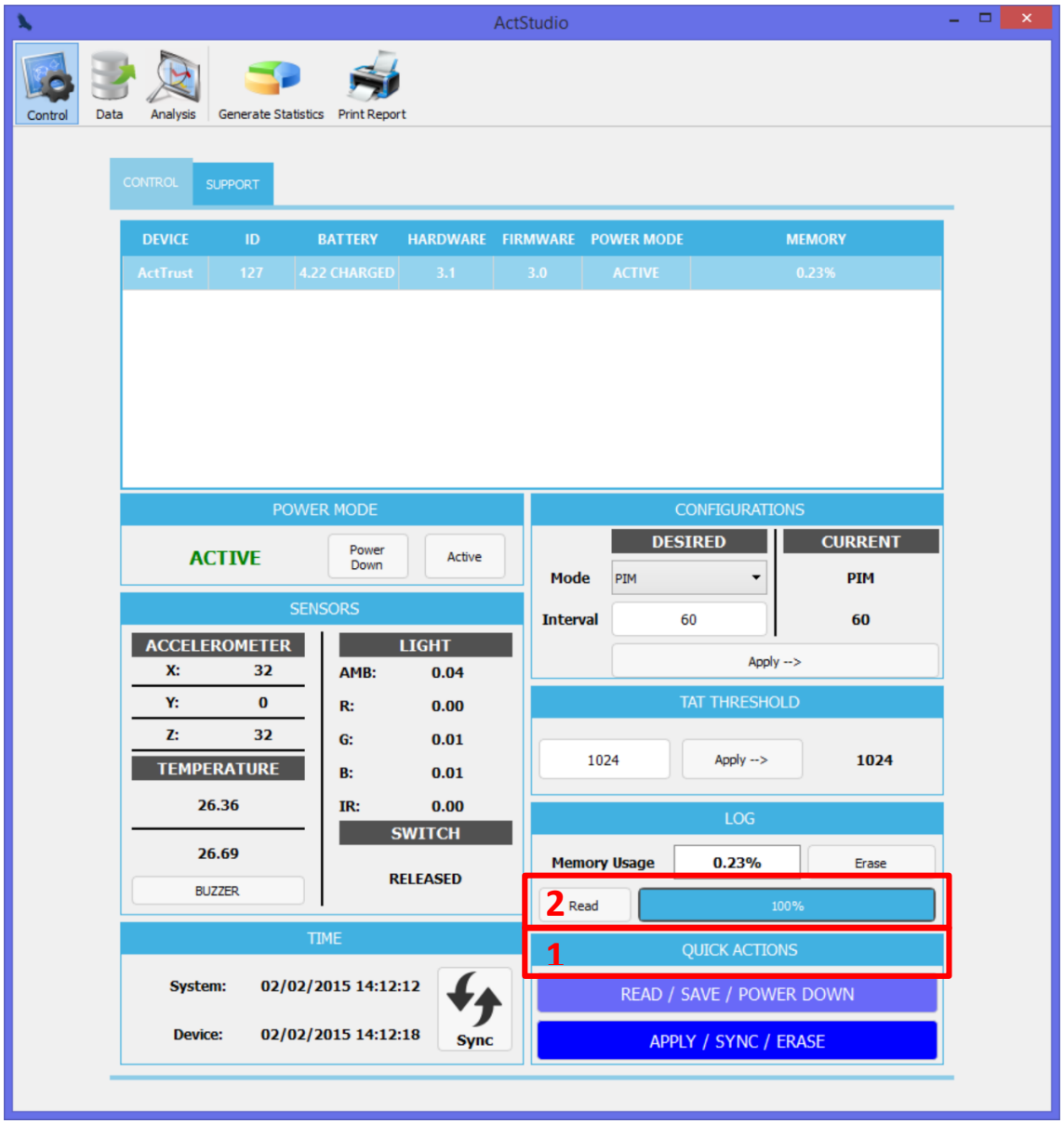
Quick Operations Buttons



There are 2 buttons in the **Control** Menu that do not add any new functionality to the ActStudio software, but rather makes operations with the ActStudio software quicker. They are basically scripts that automate a series of operations implemented by other controls.

1. **APPLY / SYNC / ERASE**: performs the same operation as if the user had pressed the buttons **APPLY** (in the **CONFIGURATIONS** section), **Sync Time** (in the **TIME** section) and **ERASE** (in the **LOG** section) sequentially.

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2. **READ / SAVE / POWER DOWN**: performs the same operation as if the user had pressed the buttons **READ** (in the **LOG** section), **SAVE** (in the **LOG** section) and **ENABLE** (in the **POWER DOWN** section) sequentially.

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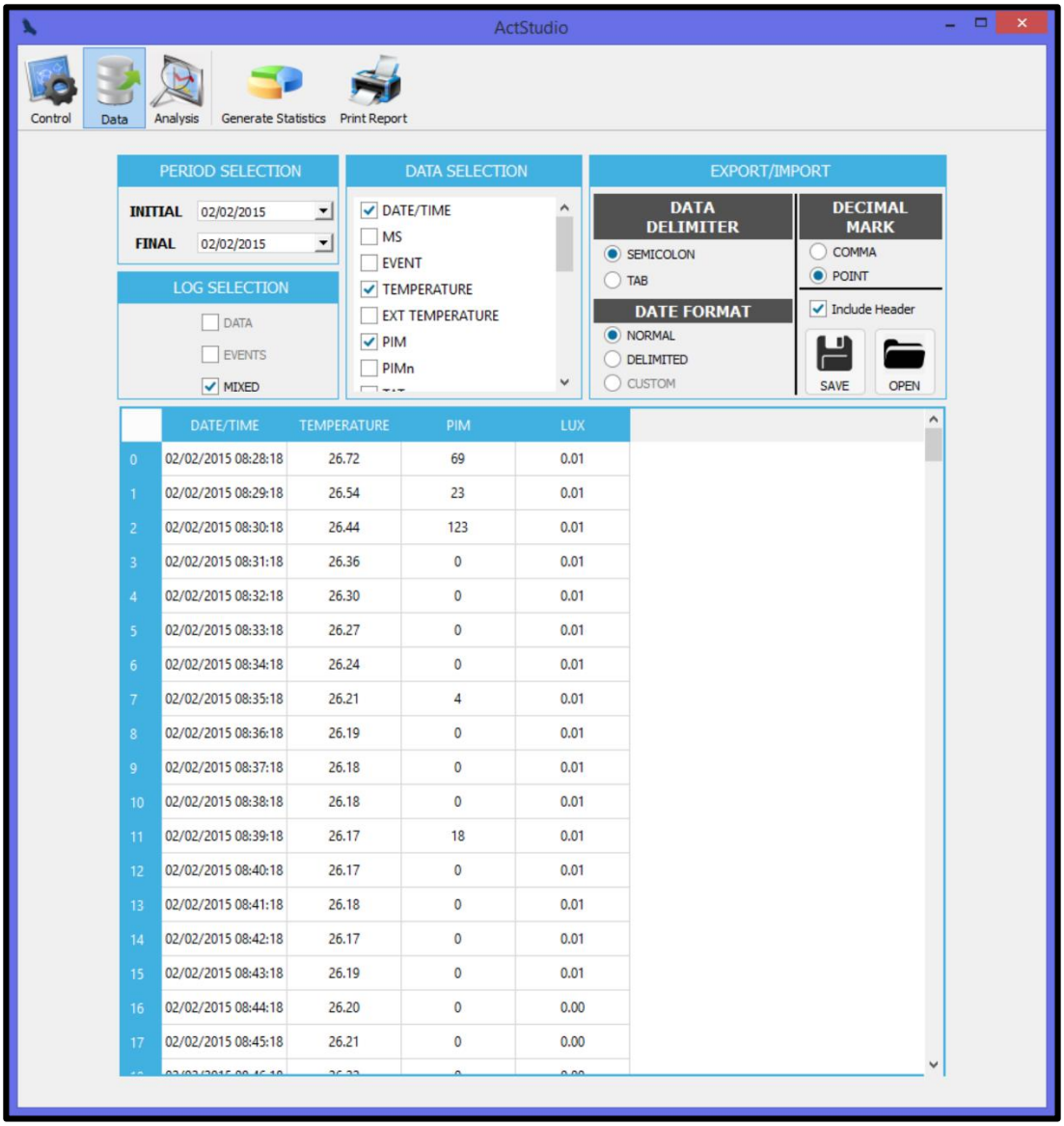
Data Menu



PERIOD SELECTION	
Field used to select the period of the data to be exported.	
INITIAL	Start date
FINAL	Final date

LOG SELECTION	
Field used to select types of log exported	
EVENTS	Event logs (e.g. button press)
DATA	Data logs (activity, temperature and light).
MIXED	Just data logs (DATA) will be exported, but will be informed if there was some event during the Data log period.

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DATA SELECTION	
Field used to select which data types to be exported	
DATE/TIME	Date and time of the log.
MS	Milliseconds value of the log.
EVENT	Normal Mode: Indicates whether the log is an event. Mixed Mode: Indicates whether there was an event during this log period.
TEMPERATURE	Value of the temperature (in ° C).
EXT. TEMPERATURE	Value of the external temperature (in ° C).
PIM	Activity value calculated in Proportional Integral Mode
PIMn	Value of the PIM normalized per second.
TAT	Activity value calculated in Time Above Threshold mode.
TATn	Value of the TAT normalized per second.
ZCM	Activity value calculated in Zero Crossing Mode
ZCMn	Value of the ZCM normalized per second.
LUX	Value of the light intensity in lux (Only hadware 2.x)
AMB LIGHT	Value of the light intensity in µw/m² (Only hadware 3.x)
RED LIGHT	Value of red light intensity in µw/cm² (Only hadware 3.x)
GREEN LIGHT	Value of green light intensity in µw/cm² (Only hadware 3.x)
BLUE LIGHT	Value of blue light intensity in µw/cm² (Only hadware 3.x)
IR LIGHT	Value of IR light intensity in µw/cm² (Only hadware 3.x)

EXPORT/IMPORT	
DATA DELIMITER	Character used to delimit data when exported. TAB SEMICOLON(;)
DECIMAL MARK	Character used as decimal mark when exported. COMMA(,) Point(.)
DATE FORMAT	Date and Time field formatting when exported. NORMAL: Date and time delimited by a space. DELIMITED: Date and time delimited by the delimiter character (DATA DELIMITER) chosen. CUSTOM: Date and time in the format HHMM.
Include Header	Selects whether to include a header in the exported data.
Save Button	Saves the extracted data with the desired settings.
Open Button	Open data from old logs(the data must have the header).

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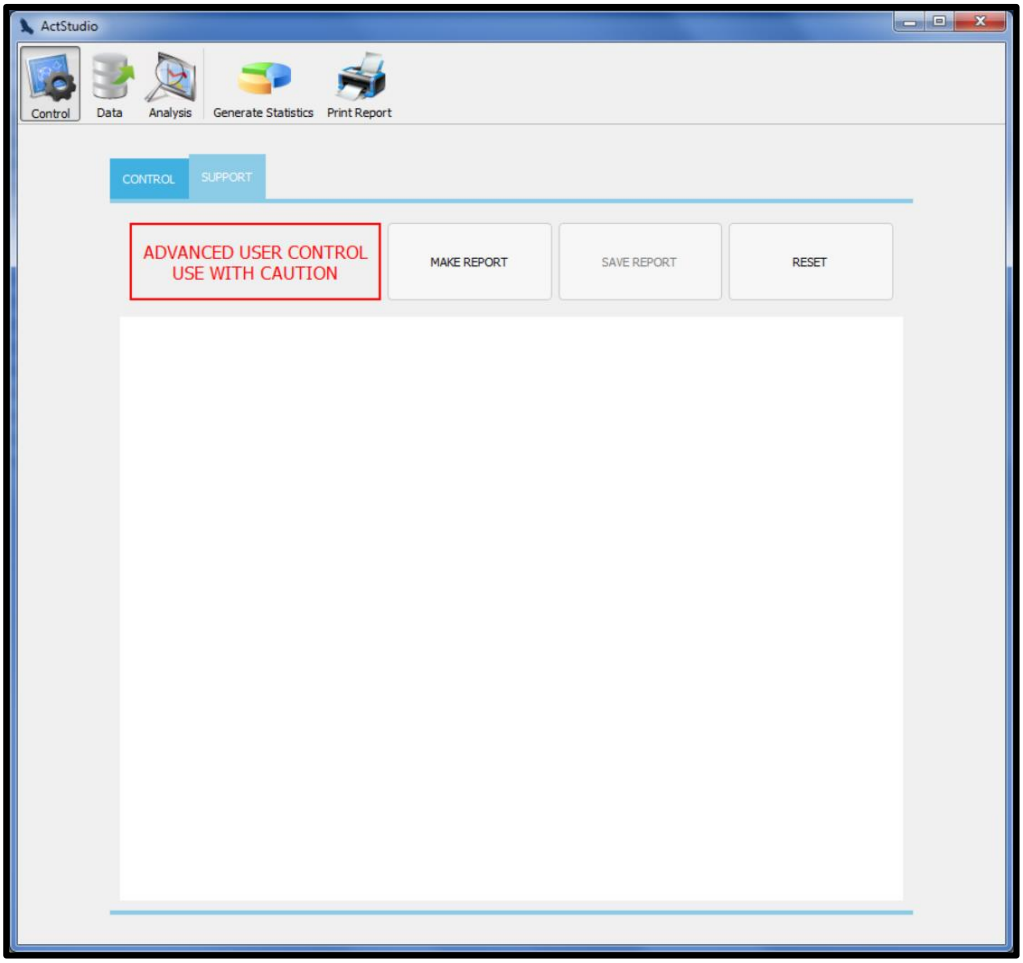
Support Menu



SUPORT	
MAKE REPORT Button	Generates a report with relevant information about the connected device.
SAVE REPORT Button	Save the report generated with the MAKE REPORT button.
RESET Button	Resets the connected device.

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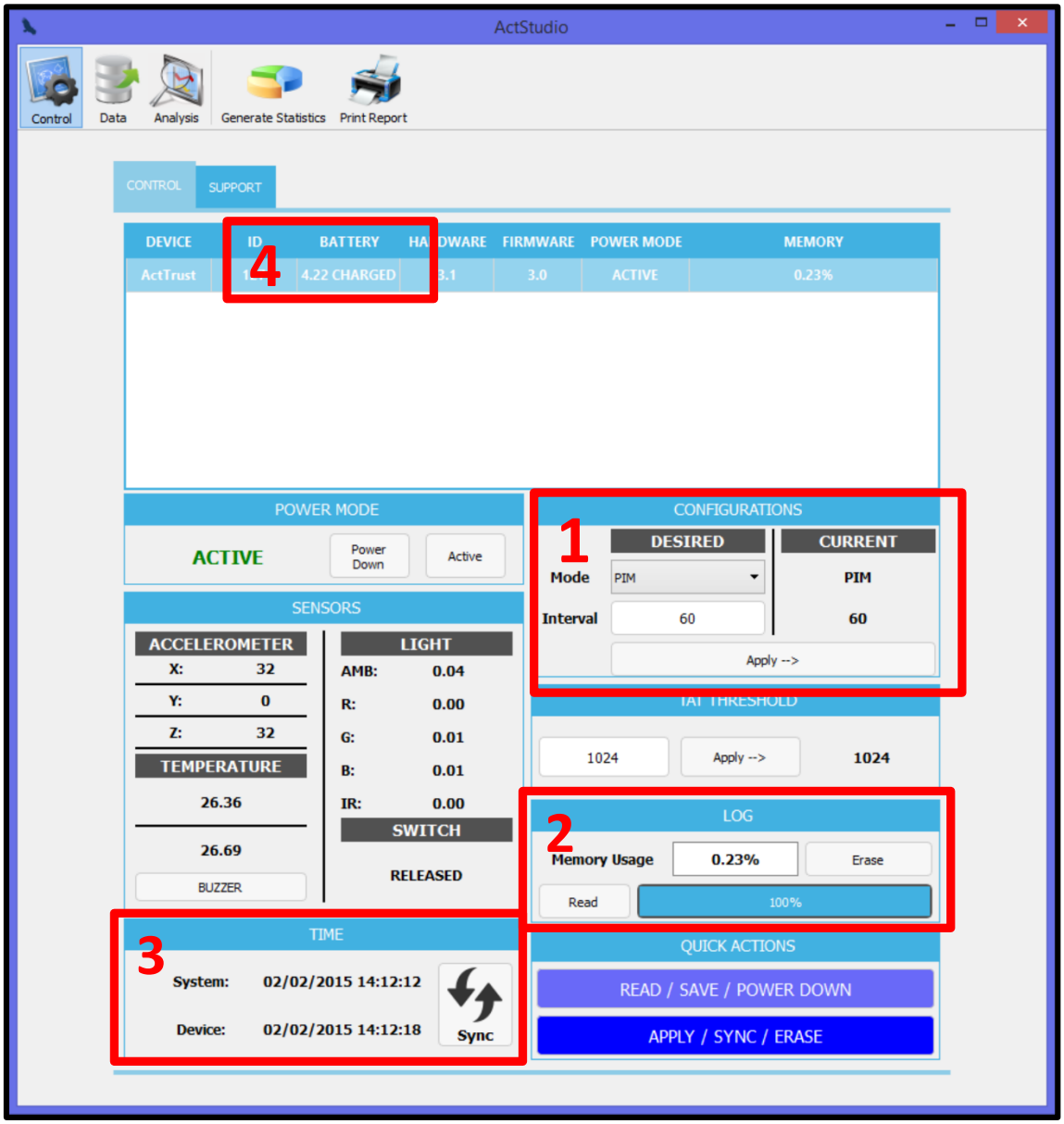
Configuring ActTrust for an Operation



1. Choose the sampling mode and the sampling interval in the **CONFIGURATIONS** field. Click the **APPLY** button.

2. It is recommended to delete all data on the device used before starting a new sampling to maintain data consistency. In order to do so, click the **ERASE** button in the **LOG** field. A window asking if you really want to delete the data from the device will appear. Click **YES**.

3. It is advisable to synchronize the device time with the time of the user's computer in order to reduce any accumulated drift. To do this, click in the **SYNC** button on the **TIME** field.

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4. It is advisable to wait until the device's battery is fully charged to ensure the operating time specified. To monitor the state of the battery charge, check the **BATTERY** field. When the battery is fully charged, it will be indicated as **CHARGED**.
5. With all the desired settings done, the device can be removed from the dock and it will be already in operation.

REMARKS: After performing the steps 1 – 4 once, the configuration process can be performed by using the **APPLY / SYNC / ERASE** Button**.**

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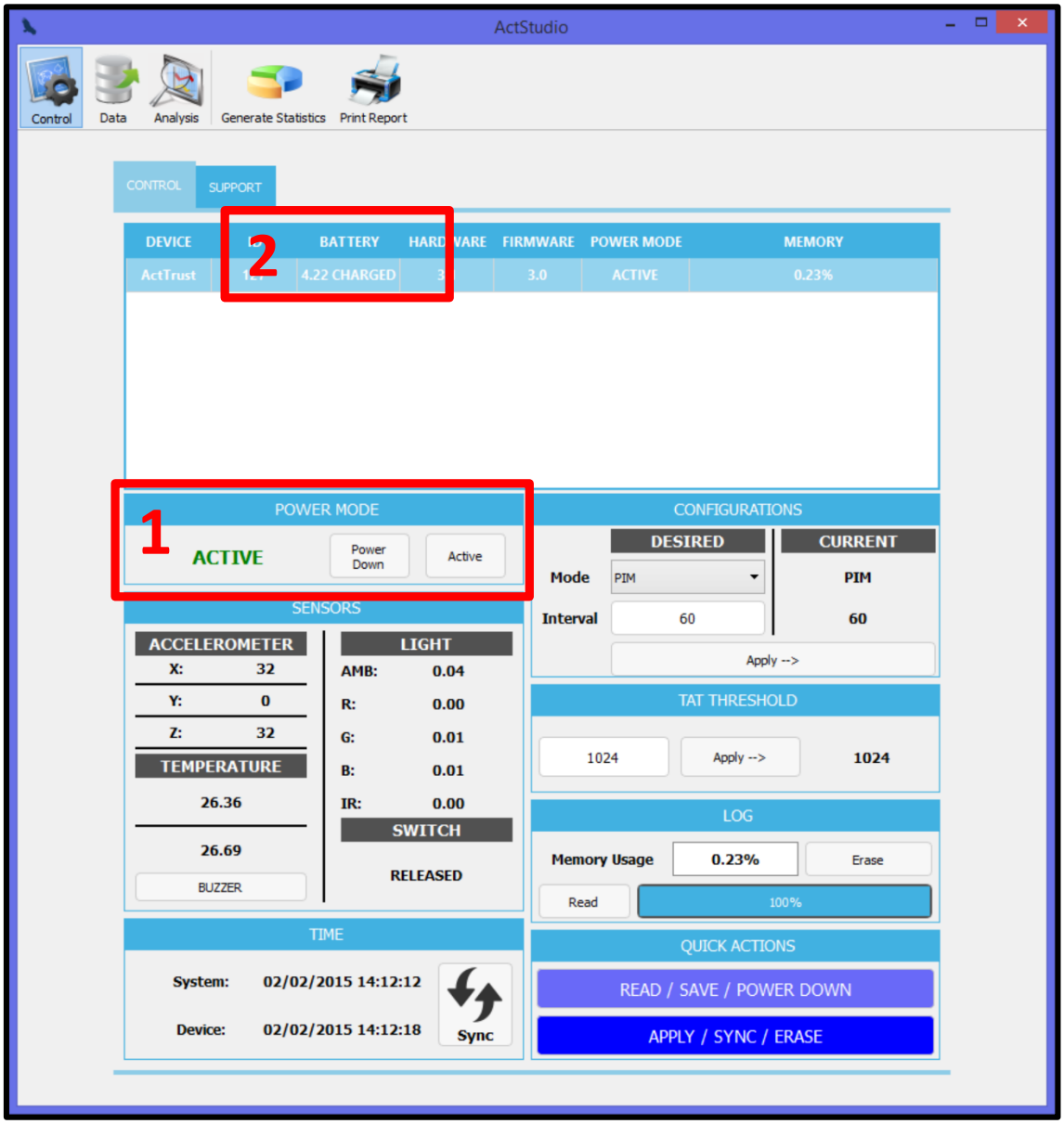
Putting ActTrust Into Power Down Mode



1. In **POWER DOWN** field, click in the Power Down button. Make sure the field show's **POWER DOWN**.

2. It is recommended to wait until the ActTrust's battery is fully charged before putting it in storage mode. To monitor the state of the battery charge, check the **BATTERY** field. When the battery is fully charged, it will be indicated as **CHARGED**.

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3. Just remove the ActTrust from the dock and it will already be in storage mode. In case it is reconnected to the dock, it will automatically come into the datalogger mode. If you want to check the device actually is in storage mode, press the event button a few seconds after it is removed from the dock. The buzzer should not beep when pressing the button. If the buzzer beeps, repeat the steps described above again.

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Extracting ActTrust Data

1. Click the **READ** button in the **LOG** field. Wait for the reading to be performed. The software will freeze while reading.

2. Navigate to the **DATA** menu.

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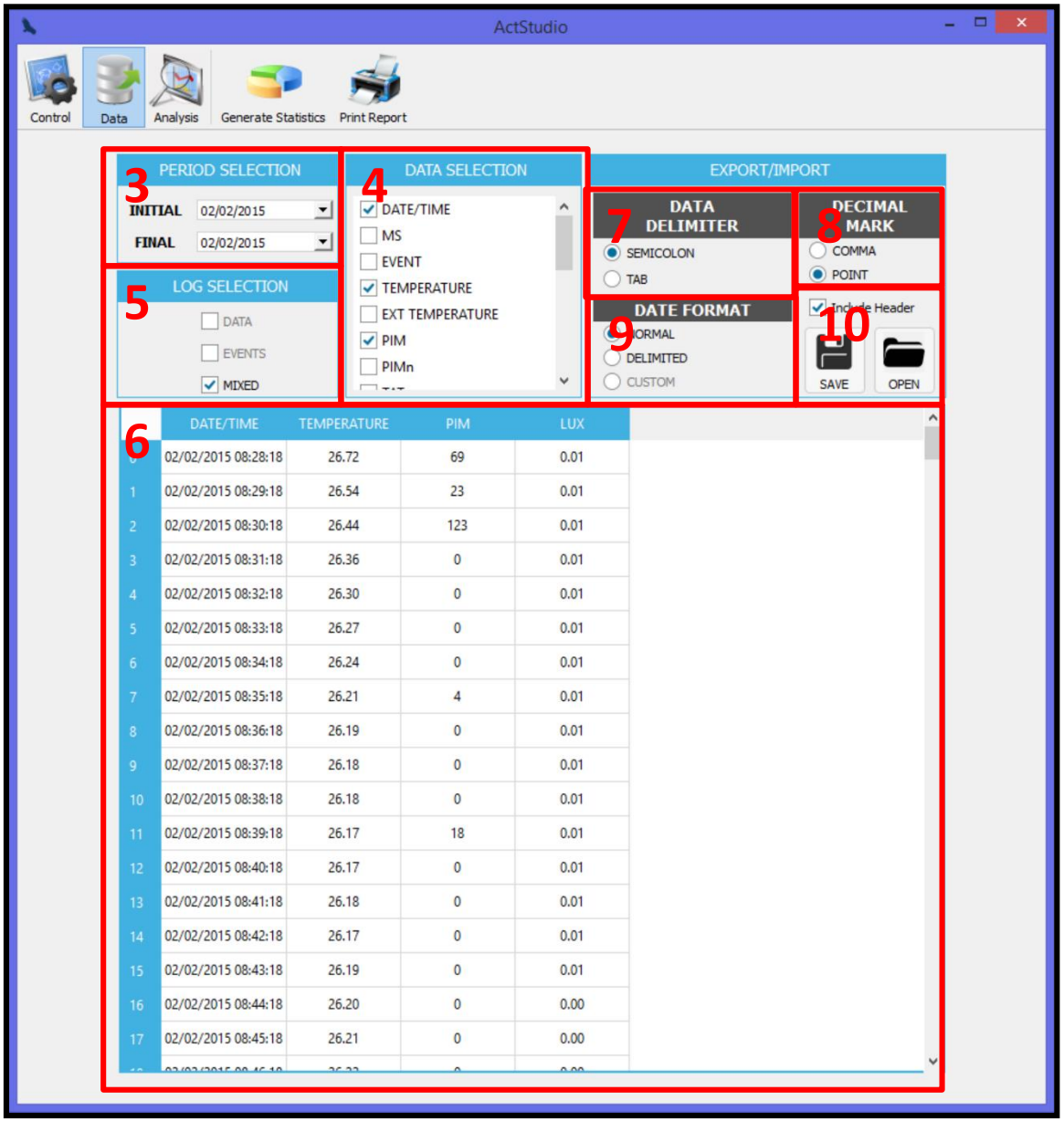

3. Select the period of the data to be exported in **PERIOD SELECTION** field

4. Select the data to be exported in the **DATA SELECTION** field.

5. Select the types of log to be included in the exported file in the **LOG SELECTION** field.

6. The exported data can be seen in **Table** tab.

7. In the **DATE DELIMITER** field, select which character will be used as the data delimiter.

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8. In the **DECIMAL MARK** field, select which character will be used as decimal separator.

9. In the **DATE FORMAT** field, select which format will be used for the date and time of exported logs.

10. Select **INCLUDE HEADER** if you want to include a header in the exported data. Press the Save button and select where the data will be saved and the file name.

REMARKS: After performing the steps 2 – 11 once, the data extraction process can be performed by using the **READ / SAVE /POWER DOWN** Button with the additional effect of enabling the power down mode of the device.

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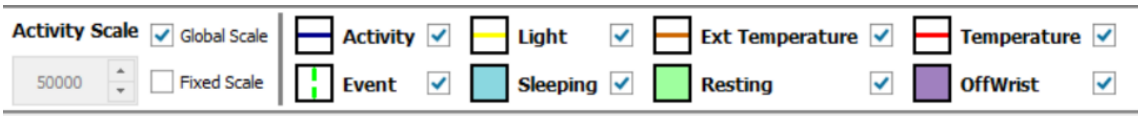
Data Analisys

On this menu the data extracted in the previous steps can be analised and additional information can be attached

Actogram

An actogram can be plotted and edited for publishing it on the report

Plot Setup



On the top of the window there is a configuration menu it has the following options and configurations

Plot Setup	
Activity Scale	Sets the scale that will be used to display activity data. Global Scale – Same scale used to all plots Fixed scale – Use the scale set manually by the user
Activity	Select if Activity data will or will not be shown in the graphs
Event	Select if Event data will or will not be shown in the graphs
Light	Select if Light data will or will not be shown in the graphs
Sleeping	Select if computer calculated Sleeping time will or will not be shown in the graphs

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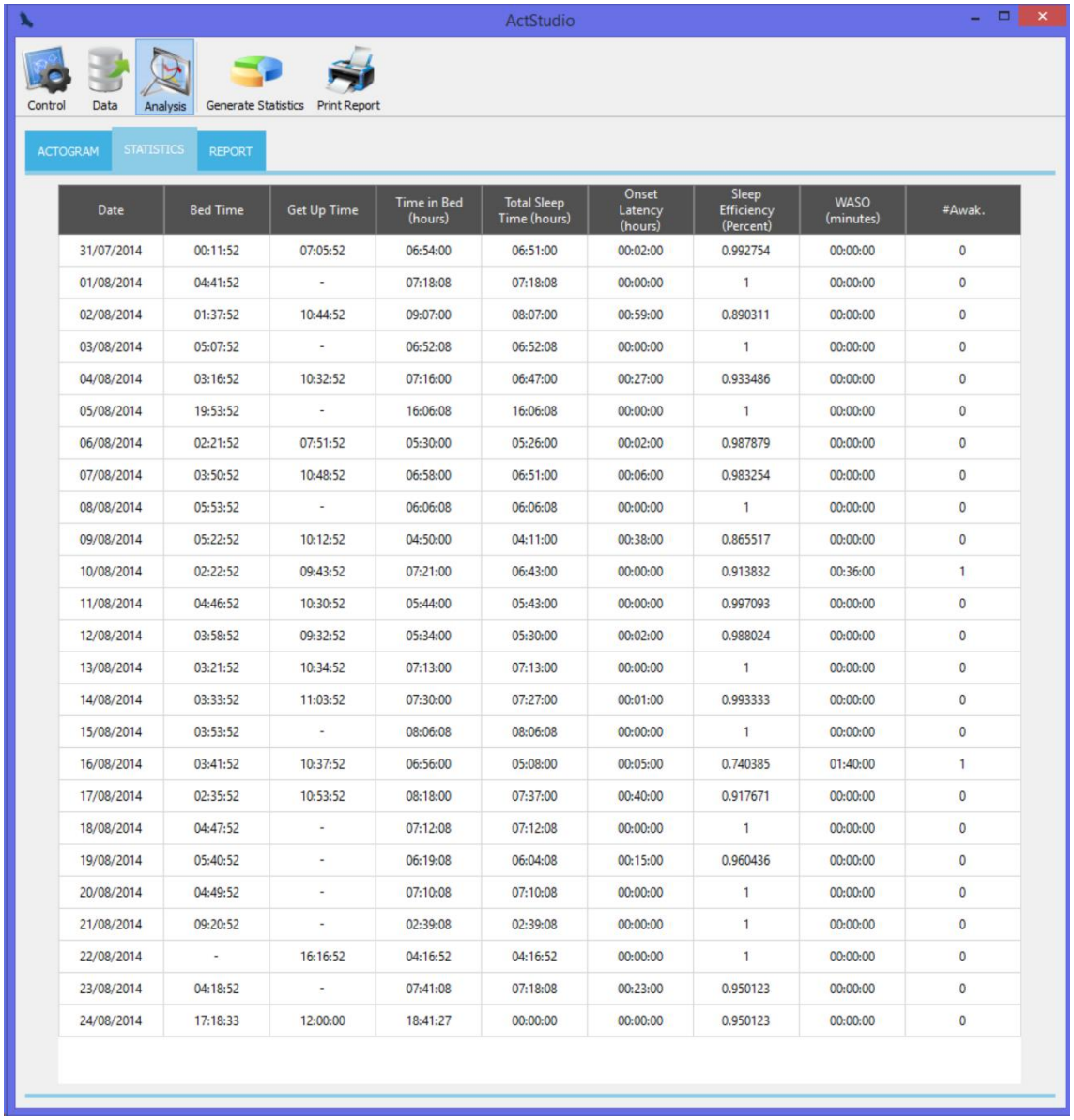
Ext Temperature	Select if External Temperature data will or will not be shown in the graphs
Resting	Select if computer calculated Resting time will or will not be shown in the graphs
Temperature	Select if Temperature data will or will not be shown in the graphs
OffWrist	Select if computer calculated time where the device was not worn will or will not be shown in the graphs

Statistics

This page will calculate and show the daily analyses of sleep performance



Date	Bed Time	Get Up Time	Time in Bed (hours)	Total Sleep Time (hours)	Onset Latency (hours)	Sleep Efficiency (Percent)	WASO (minutes)	#Awak.
31/07/2014	00:11:52	07:05:52	06:54:00	06:51:00	00:02:00	0.992754	00:00:00	0
01/08/2014	04:41:52	-	07:18:08	07:18:08	00:00:00	1	00:00:00	0
02/08/2014	01:37:52	10:44:52	09:07:00	08:07:00	00:59:00	0.890311	00:00:00	0
03/08/2014	05:07:52	-	06:52:08	06:52:08	00:00:00	1	00:00:00	0
04/08/2014	03:16:52	10:32:52	07:16:00	06:47:00	00:27:00	0.933486	00:00:00	0
05/08/2014	19:53:52	-	16:06:08	16:06:08	00:00:00	1	00:00:00	0
06/08/2014	02:21:52	07:51:52	05:30:00	05:26:00	00:02:00	0.987879	00:00:00	0
07/08/2014	03:50:52	10:48:52	06:58:00	06:51:00	00:06:00	0.983254	00:00:00	0
08/08/2014	05:53:52	-	06:06:08	06:06:08	00:00:00	1	00:00:00	0
09/08/2014	05:22:52	10:12:52	04:50:00	04:11:00	00:38:00	0.865517	00:00:00	0
10/08/2014	02:22:52	09:43:52	07:21:00	06:43:00	00:00:00	0.913832	00:36:00	1
11/08/2014	04:46:52	10:30:52	05:44:00	05:43:00	00:00:00	0.997093	00:00:00	0
12/08/2014	03:58:52	09:32:52	05:34:00	05:30:00	00:02:00	0.988024	00:00:00	0
13/08/2014	03:21:52	10:34:52	07:13:00	07:13:00	00:00:00	1	00:00:00	0
14/08/2014	03:33:52	11:03:52	07:30:00	07:27:00	00:01:00	0.993333	00:00:00	0
15/08/2014	03:53:52	-	08:06:08	08:06:08	00:00:00	1	00:00:00	0
16/08/2014	03:41:52	10:37:52	06:56:00	05:08:00	00:05:00	0.740385	01:40:00	1
17/08/2014	02:35:52	10:53:52	08:18:00	07:37:00	00:40:00	0.917671	00:00:00	0
18/08/2014	04:47:52	-	07:12:08	07:12:08	00:00:00	1	00:00:00	0
19/08/2014	05:40:52	-	06:19:08	06:04:08	00:15:00	0.960436	00:00:00	0
20/08/2014	04:49:52	-	07:10:08	07:10:08	00:00:00	1	00:00:00	0
21/08/2014	09:20:52	-	02:39:08	02:39:08	00:00:00	1	00:00:00	0
22/08/2014	-	16:16:52	04:16:52	04:16:52	00:00:00	1	00:00:00	0
23/08/2014	04:18:52	-	07:41:08	07:18:08	00:23:00	0.950123	00:00:00	0
24/08/2014	17:18:33	12:00:00	18:41:27	00:00:00	00:00:00	0.950123	00:00:00	0

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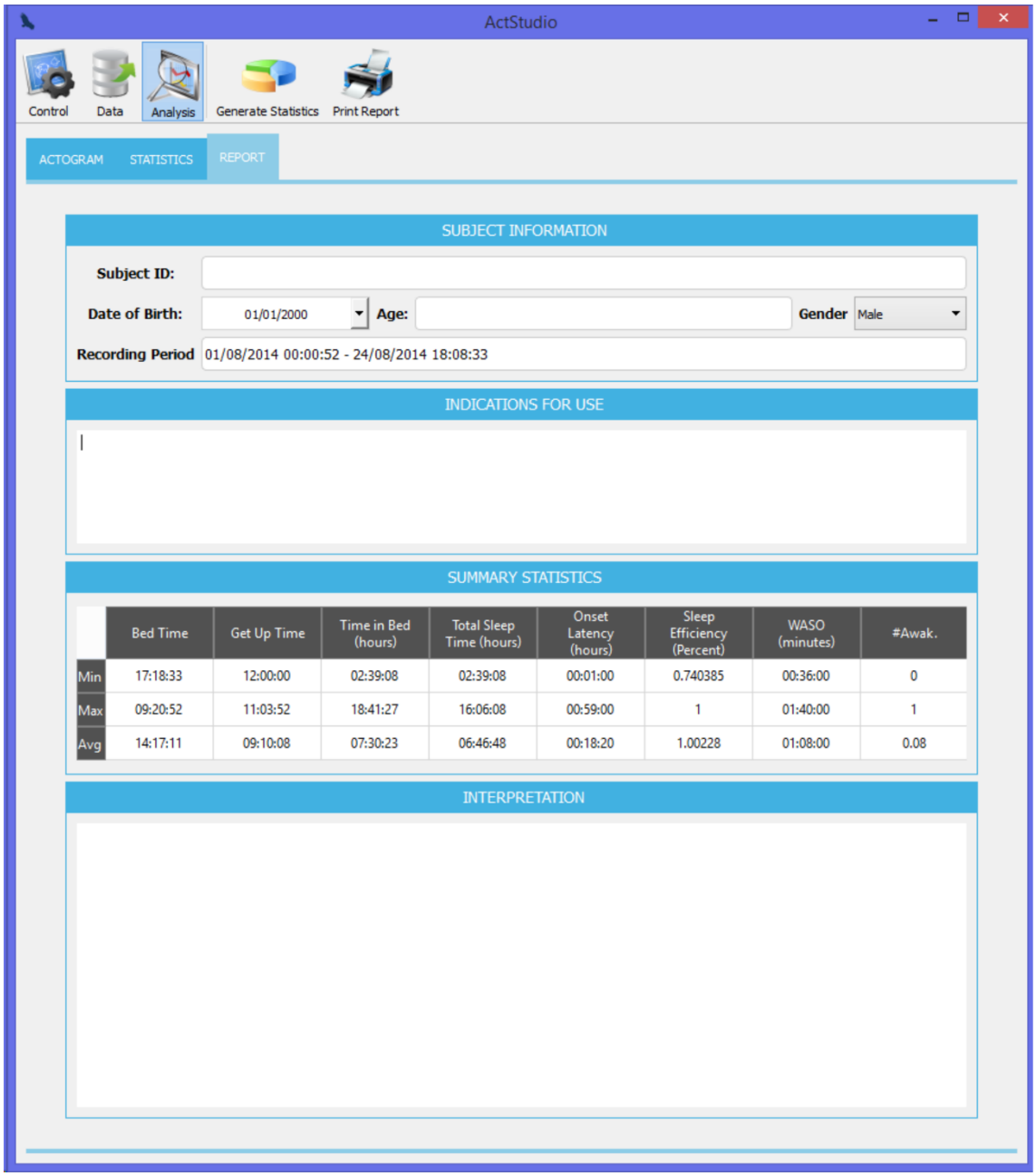
Report

Here it is possible to include wearer information's and doctor conclusions. All those informations will be included in the pdf report file.



	Bed Time	Get Up Time	Time in Bed (hours)	Total Sleep Time (hours)	Onset Latency (hours)	Sleep Efficiency (Percent)	WASO (minutes)	#Awak.
Min	17:18:33	12:00:00	02:39:08	02:39:08	00:01:00	0.740385	00:36:00	0
Max	09:20:52	11:03:52	18:41:27	16:06:08	00:59:00	1	01:40:00	1
Avg	14:17:11	09:10:08	07:30:23	06:46:48	00:18:20	1.00228	01:08:00	0.08

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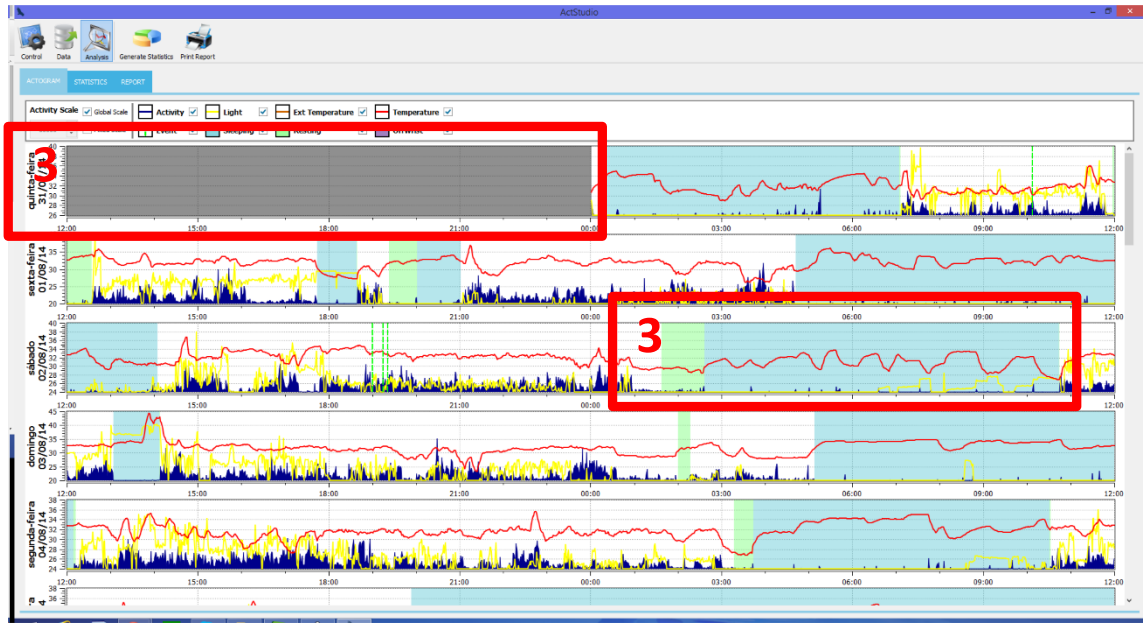
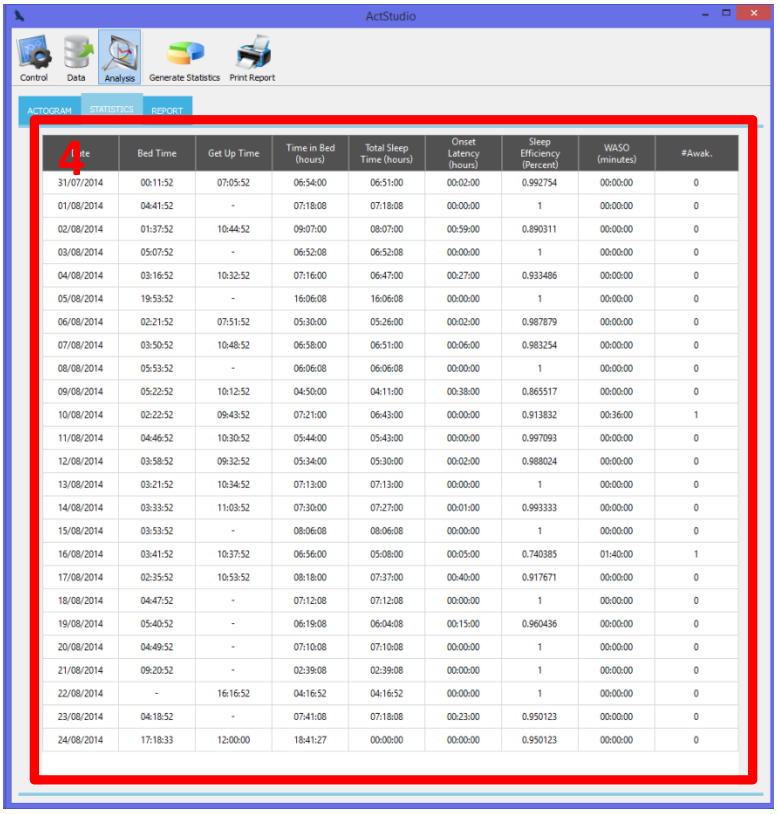
Making a Report

1. Extract or load the data to be analyzed.



2. Go to the Actogram menu and verify the data.
3. If necessary, all the areas (off wrist, sleep, rest) can be edited and reassigned.
4. On the statistics menu the statistics can be checked



Date	Bed Time	Get Up Time	Time in Bed (hours)	Total Sleep Time (hours)	Onset Latency (hours)	Sleep Efficiency (Percent)	WASO (minutes)	#Awak.
31/07/2014	00:11:52	07:05:52	06:54:00	06:51:00	00:02:00	0.992754	00:00:00	0
01/08/2014	04:41:52	-	07:18:08	07:18:08	00:00:00	1	00:00:00	0
02/08/2014	01:37:52	10:44:52	09:07:00	08:07:00	00:59:00	0.890311	00:00:00	0
03/08/2014	05:07:52	-	06:52:08	06:52:08	00:00:00	1	00:00:00	0
04/08/2014	03:16:52	10:32:52	07:16:00	06:47:00	00:27:00	0.933486	00:00:00	0
05/08/2014	19:53:52	-	16:06:08	16:06:08	00:00:00	1	00:00:00	0
06/08/2014	02:21:52	07:51:52	05:30:00	05:26:00	00:02:00	0.987879	00:00:00	0
07/08/2014	03:50:52	10:48:52	06:58:00	06:51:00	00:06:00	0.983254	00:00:00	0
08/08/2014	05:53:52	-	06:06:08	06:06:08	00:00:00	1	00:00:00	0
09/08/2014	05:22:52	10:12:52	04:50:00	04:11:00	00:38:00	0.865517	00:00:00	0
10/08/2014	02:22:52	09:43:52	07:21:00	06:43:00	00:00:00	0.913832	00:36:00	1
11/08/2014	04:46:52	10:30:52	05:44:00	05:43:00	00:00:00	0.997093	00:00:00	0
12/08/2014	03:58:52	09:32:52	05:34:00	05:30:00	00:02:00	0.988024	00:00:00	0
13/08/2014	03:21:52	10:34:52	07:13:00	07:13:00	00:00:00	1	00:00:00	0
14/08/2014	03:33:52	11:03:52	07:30:00	07:27:00	00:01:00	0.993333	00:00:00	0
15/08/2014	03:53:52	-	08:06:08	08:06:08	00:00:00	1	00:00:00	0
16/08/2014	03:41:52	10:37:52	06:56:00	05:08:00	00:05:00	0.740385	01:40:00	1
17/08/2014	02:35:52	10:53:52	08:18:00	07:37:00	00:40:00	0.917671	00:00:00	0
18/08/2014	04:47:52	-	07:12:08	07:12:08	00:00:00	1	00:00:00	0
19/08/2014	05:40:52	-	06:19:08	06:04:08	00:15:00	0.960436	00:00:00	0
20/08/2014	04:49:52	-	07:10:08	07:10:08	00:00:00	1	00:00:00	0
21/08/2014	09:20:52	-	02:39:08	02:39:08	00:00:00	1	00:00:00	0
22/08/2014	-	16:16:52	04:16:52	04:16:52	00:00:00	1	00:00:00	0
23/08/2014	04:18:52	-	07:41:08	07:18:08	00:23:00	0.950123	00:00:00	0
24/08/2014	17:18:33	12:00:00	18:41:27	00:00:00	00:00:00	0.950123	00:00:00	0

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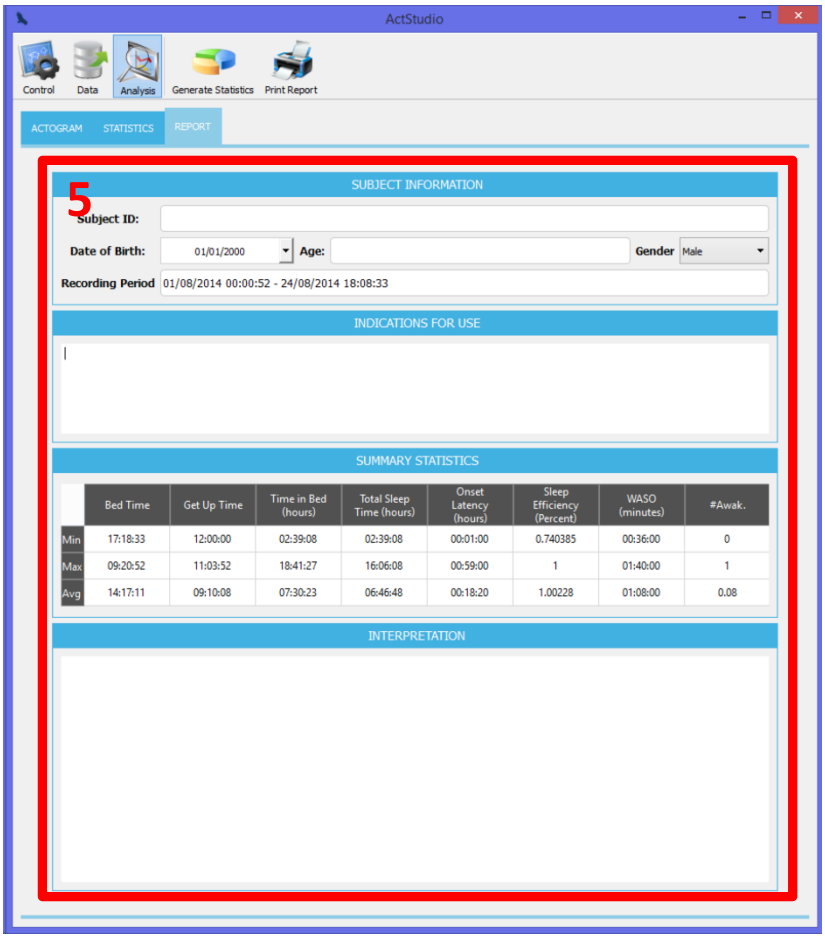
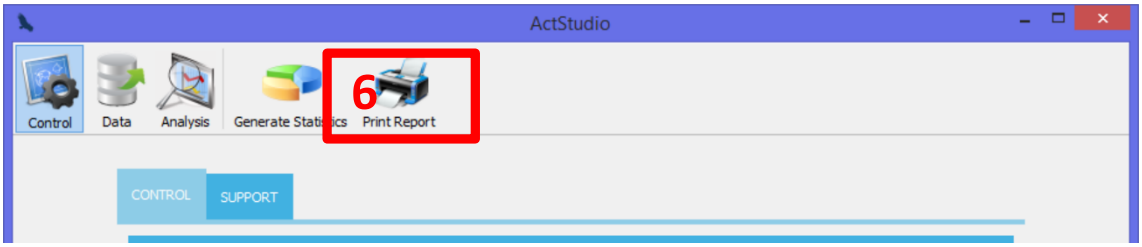
5. On the report menu, insert all relevant data about the subject.



6. Click on the print report button and select the location where the report will be saved.



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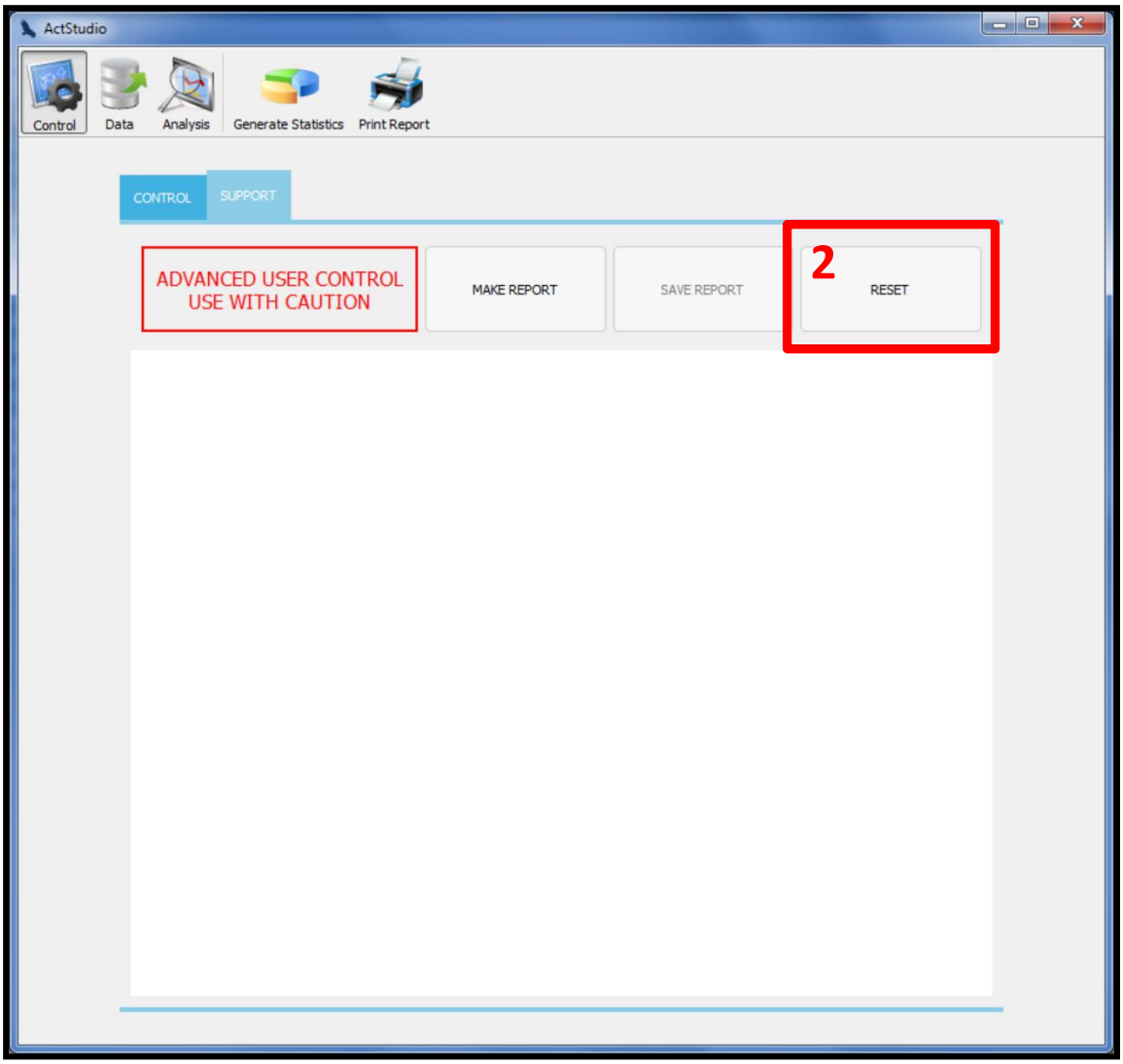
Rebooting ActTrust

1. In the **Control** Menu, Navigate to the **Support** Menu.



2. Press the **RESET** button and wait.

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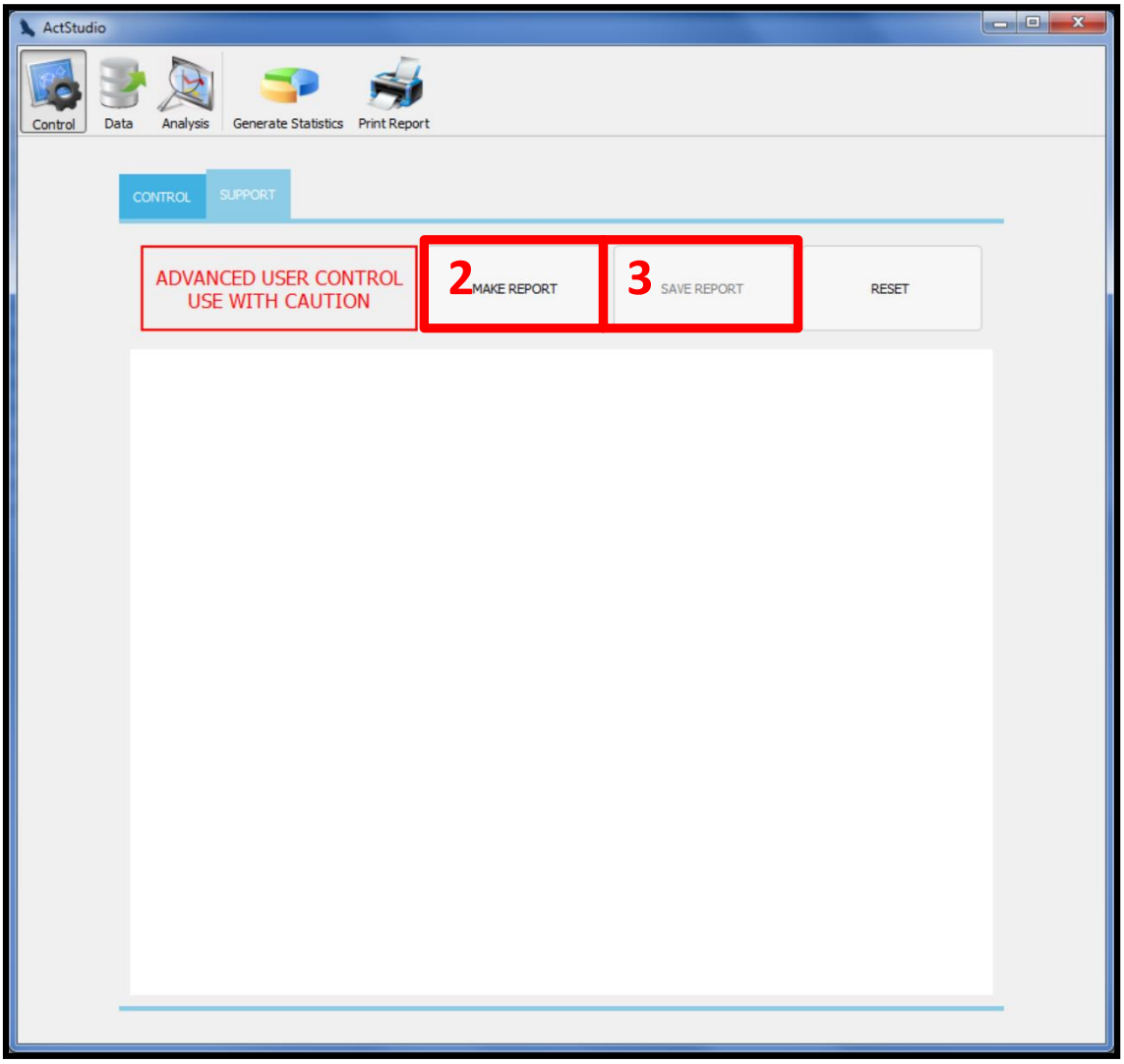
Generating a Report of the ActTrust

1. Navigate to the **Support** Menu.



2. Press the **MAKE REPORT** button and wait for the report to be generated and displayed in the text box.

3. Press the **SAVE REPORT** button and select the file name and location where the report will be saved.

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Troubleshooting

Most problems with the ActTrust can be resolved quickly following the guidelines in this chapter. If the problem persists, please contact Condor Instruments personnel to receive new guidelines.

My ActTrust is beeping every one minute

When the charge of the battery of your ActTrust device is very low, it starts beeping every minute to inform you that soon it will enter in storage mode to ensure that it will not operate at unreliable conditions. To solve this problem, recharge your ActTrust and it should stop beeping.

I push the events button, but I'm not hearing any beep

This can be caused mainly by two reasons. The first is due to a low battery charge of the ActTrust. The second is the possibility that the device is in power down mode. In both cases, connect your device to your computer using the dock interface. Wait at least 5 minutes and follow the procedure described in this manual to reset the device. Disconnect it from the dock and check if the problem persists.

When connecting the ActTrust on the computer a message appears on ActStudio software

The procedure will depend on the message itself.

If the message **"Device With Low Battery"** shows up, allow the battery to charge for a few minutes and follow the procedure described in this manual to reset the ActTrust.

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If the message **"Error With Device State"** show up, follow the procedure described in this manual to generate a report and save the document to a known location. After saving the report, try restarting the device. If the problem persists, please contact Condor Instruments personnel to receive new guidelines. If contacting by email, please attach the report generated by ActStudio.

The numbers that appear in ActStudio seems strange

This may be due to a problem initializing the device when the battery charge is too low. Connect the device at the ActDock, wait a few minutes to make sure the battery has a safe charge level and follow the procedure described in this manual to reset the ActTrust. If the problem persists, please contact Condor Instruments personnel.

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CONDOR INSTRUMENTS

Specifications

General Specifications	
Weight Without Band	19g
Weight With Band	38g
Dimensions	47mm x 31mm x 12mm
Ambient Conditions	• Operation Temperature: 0 °C a 60 °C (32 °F a 140 °F) • Storage and transport Temperature: -20 °C a 60 °C (-4 °F a 140 °F) • Operation, Storage and Transport Pressure: 0 a 2500hPa • Operation, Storage and Transport Humidity: 0 a 98%
Memory size	4MB
Sampling Period	3 Months (Using 60s epoch)
Battery Life	3 Months (Using 60s epoch)
Battery type	Rechargeable Li-ion
Water Resistance	IP67
Sampling Interval	Settable from 1s to 86400s
Sensors	Accelerometer Wrist Temperature Light
Communication	USB using a dock as interface
Activity Processing Modes	PIM, TAT e ZCM
Electromagnetic Compatibility	The product complies with all applicable electromagnetic compatibility requirements (EMC) according to IEC60601-1-2, for residential, commercial and light industry environments. For details, see " Manufacturer's declaration - Electromagnetic Immunity and Emission"

Accelerometer	
Axes	3
Resolution	12 bits
Sampling Rate	25Hz

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Temperature Sensors	
Precision	+/-0.5ºC (20°C to 40°C)/ 1°C For other values
Operating Range	**0°C – 70°C**

Light Sensor	
Spectrum	**Red, Green, Blue and Inferred**
Observations	**Measures the intensity of each spectrum individual and the total light intensity**
Operation interval	**0.01 - 8388.61µW/cm²**
Precision	**10% a 10µW/cm² (typical)**

Notas:

- *O fabricante reserva-se o direito de alterar estas especificações sem aviso prévio*

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Manufacturer's declaration - Electromagnetic Immunity and Emission

The medical electrical equipment needs special precautions regarding electromagnetic compatibility (EMC) and needs to be installed and put into service according to EMC information contained herein.

Manufacturer's declaration – Electromagnetic Emission

The product is suitable for use in a specific electromagnetic environment. The customer and/or the user of the product should assure that it is used in an electromagnetic environment as described below.

Emission Test	Compliance	Electromagnetic Environment Guidance
RF-Emission (Radio frequency) CISPR11	Group 1	The product use RF energy only for its internal function. Therefore, its RF emissions are very low and not likely to cause any interference in nearby electronic equipment.
RF-Emission (Radio frequency) CISPR11	Class B	The product is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purpose.
Harmonic emissions IEC 61000-3-2	Do not Apply	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Complies	

Manufacturer's declaration – Electromagnetic Immunity I

The product is suitable for use in a specific electromagnetic environment. The customer and/or the user of the product should assure that it is used in an electromagnetic environment as described below.

Immunity Test	IEC 60601-1-2 Level	Compliance Level	Electromagnetic Environment Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floor should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %
Electrical fast transient/bursts IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	Do not Apply	The device is recharged via computer, is not subject directly to the power source
Surge IEC61000-4-5	± 1 kV differential mode ± 2 kV common mode	Do not Apply	The device is recharged via computer, is not subject directly to the power source
Voltage dips, short interruptions and voltage variations on power supply input lines IEC61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 sec	Do not Apply	The device is recharged via computer, is not subject directly to the power source
Power frequency(50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE 1: U_T is the mains (AC) voltage before apply test levels

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Manufacturer's declaration – Electromagnetic Immunity II

The product is suitable for use in a specific electromagnetic environment. The customer and/or the user of the product should assure that it is used in an electromagnetic environment as described below.

Immunity Test	**IEC 60601-1-2 Level**	**Compliance Level**	**Eletromagnetic Environment Guidance**
			Portable and mobile RF communications equipment should be used no closer to any part of the product, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance:**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz a 80 MHz	3 Vrms	$d = 1,17 \sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz a 2,5 GHz	3 V/m	$d = 0,35 \sqrt{P}$ 80 MHz a 800 MHz $d = 0,70 \sqrt{P}$ 800 MHz a 2.5 GHz where P is the maximum output power rating of the transmitter in Watt (W) according to the transmitter manufacturer and d is the re-commended separation distance in meters (m) Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey [a], should be less than the compliance level [b] in each frequency range Interference may occur in the vicinity of equipment marked with the symbol described lateral.

Note 1: At 80 MHz and 800MHz, the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, people and animals.

a -Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered, if the measured field strength in the location in which the product is used exceeds the applicable RF compliance level above, the product should be observed, additional measures may be necessary, such as reorienting or relocating the product

[b] - Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 10 V/m.

Manufacturer's declaration – Recommended Separation Distances between portable and mobile HF- communications equipment and the product

The product is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the product can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the product – according on output power and frequency of the communications equipment – as recommended in the following table.

Rated maximum output power of transmitter in watts (W)	**Separation distance according to the frequency of transmitter in meter (m)**		
	150 kHz a 80 MHz d $= 1,17 \sqrt{P}$	80 MHz a 800 MHz d $= 0,35 \sqrt{P}$	800 MHz a 2.5 GHz d $= 0,7 \sqrt{P}$
0,01	0,12	0,04	0,07
0,1	0,37	0,11	0,22
1	1,17	0,35	0,7
10	3,70	1,11	2,21
100	11,70	3,50	7,0

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1: At 80 MHz and 800MHz, the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, people and animals.

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Environmental information

This device should be disposed in accordance with the rules and regulations of the country in which the disposal takes place. For more information about the disposal of products, please contact the representative of the Condor or specialized distributor in your area, or visit our website at www.condorinst.com.

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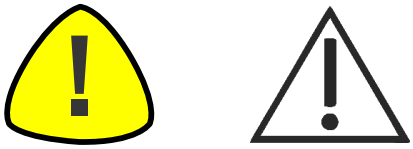
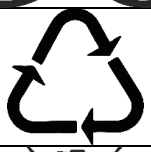
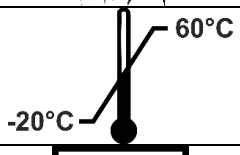
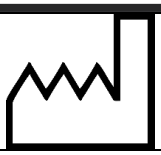
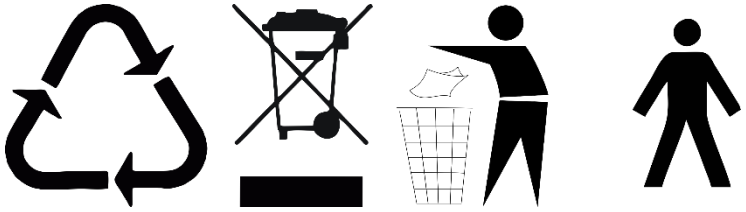
CONDOR INSTRUMENTS

Symbols

	General attention warning
	Read the operation instructions
	Recyclable material
	Weee – Waste Eletrical and Eletronic Equipment
	Dispose at appropriate site
	Temperature Limits
	Applied part type BF
	Fabrication batch
	Year of fabrication



Manufactured by MedSupply

Rua Euclides Ribeiro do Vale, 40 – Santa Rita de Sapucai - MG

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